

C L A I M S

1. An electric potential measuring device comprises: a detection electrode comprised of a conductive material and disposed in opposition to an object to be measured; a movable structure comprised of a first solid material portion comprised of a dielectric and a second solid material portion comprised of a material having a relative dielectric constant different from the dielectric or a conductive material and disposed so as to come to the object to be measured side of the detection electrode; and a drive mechanism for moving the movable structure in such a way as to change a positional relationship of the first and second solid material portions for the detection electrode in an area between the detection electrode and the object to be measured, wherein a charge induced on the detection electrode by electric lines of force emanating from the object to be measured is modulated by moving the movable structure by the drive mechanism, to measure an electric potential of the object to be measured.

2. The electric potential measuring device according to claim 1, wherein said detection electrode is formed on a substrate disposed in opposition to the object to be measured, and said movable structure is periodically movable in a

surface parallel to the substrate just above the surface of the object to be measured side of the detection electrode.

3. The electric potential measuring device
5 according to claim 1, wherein said second solid material portion is periodically shaped in a predetermined direction, and an insulator layer is formed on said detection electrode, and an electric conductor layer of a shape having the same direction
10 and the same periodic length as the second solid material portion is formed on the insulator layer.

4. The electric potential measuring device according to claim 1, wherein said second solid material portion is periodically shaped in a
15 predetermined direction, and an electric conductor layer of a shape having the same direction and the same periodic length as the second solid material portion is formed on said detection electrode through an insulator layer, and no insulator layer exists in
20 a part in which the electric conductor layer is not formed but the detection electrode is exposed.

5. The electric potential measuring device according to claim 1, wherein said second solid material portion is periodically shaped in a
25 predetermined direction, and said detection electrode is formed in a shape having the same direction and the same periodic length as the second solid material

portion.

6. The electric potential measuring device according to claim 5, wherein the electric conductor layer of a shape having the same direction and the same periodic length as the second solid material portion is formed on a portion in which the detection electrode is not formed through an insulator layer.

7. The electric potential measuring device according to claim 6, wherein the shape of said detection electrode has a divided structure, and is constituted such that a signal generated by each of the divided detection electrode can be independently measured and processed.

8. The electric potential measuring device according to claim 1, wherein said second solid material portion is comprised of said conductive material, and the conductive material is grounded.

9. The electric potential measuring device according to claim 1, wherein said movable structure is a sheet-shaped structure.

10. An image forming apparatus, comprising the electric potential measuring device according to claim 1 and an image forming means for performing a control of an image formation by using the electric potential measuring device.

11. An electric potential measuring method comprising the steps of:

preparing a detection electrode comprised of a
conductive material and disposed in opposition to an
object to be measured; a movable structure comprised
of a first solid material portion comprised of a
5 dielectric and a second solid material portion
comprised of a material having a relative dielectric
constant different from the dielectric or a
conductive material and disposed so as to come to the
object to be measured side of the detection
10 electrode; and

moving the movable structure in such a way as
to change a positional relationship of the first and
second solid material portions for the detection
electrode in an area between the detection electrode
15 and the object to be measured, whereby a charge
induced on the detection electrode by electric lines
of force emanating from the object to be measured is
modulated, to measure an electric potential of the
object to be measured.